

# PATENT SPECIFICATION

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## DRAWINGS ATTACHED

1 270 846

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## (54) IMPROVEMENTS IN OR RELATING TO COAXIAL ELECTRICAL CONNECTORS

(71) We, BELLING & LEE LIMITED, a British company, of Great Cambridge Road, Enfield, Middlesex, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to coaxial electrical connectors and is particularly concerned to provide a simple and economical connector for small coaxial cables of the kind commonly used in the distribution of television signals. Coaxial cable connectors of the kinds generally in use have employed a variety of means for making connection to the braided outer conductor of the cable and for anchoring the cable. In general these means have involved the use of a soldered or mechanically screw-clamped connection and have in consequence required careful preparation of the braided conductor.

The present invention seeks to provide a coaxial cable connector which has advantages of simplicity and economy, as compared with known connectors.

According to the present invention there is provided a coaxial cable connector including a central connecting member supported by an insulator member so as to lie within and coaxial with an outer metal shell comprising a cylindrical connecting portion of smaller diameter joined by a shoulder portion to an adjacent cylindrical portion of larger diameter, and a sleeve member of elastomeric material having a portion fitting closely upon said shell portion of greater diameter and having an inwardly projecting lip arranged to engage said shoulder portion.

The invention will now be further described with reference to the accompanying drawing, comprising Figures 1-3 of which:

Figure 1 is a sectional elevation of a

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connector according to the invention;

Figure 2 is a sectional plan of the connector shown in Figure 1, taken along the line 2-2 in that Figure, and

Figure 3 is a sectional elevation of a connector taken in an axial plane at right angles to the section plane of Figure 1 and showing a cable in place in the connector.

The connector shown in the drawing includes a tubular metal shell 11 of which a portion 12 forms the connector member for the outer conductor of a coaxial cable. Shell 11 also has a portion 13 of greater diameter than connector portion 12 and connected therewith by a shoulder portion 24. Within shell 11 and abutting against shoulder portion 24 is placed an insulator 14, centrally within which is secured a tubular member 15 forming the contact member for the central conductor of the cable. In use, as shown in Figure 3, the central conductor 16 of a coaxial cable 17 passes through contact member 15 and is soldered to its tip at 18.

The outer, braided conductor 19 of cable 17 is teased out and is then conveniently twisted together to form a stranded conductor. The braid ends are led outwardly of shell 11, conveniently through a notch 20 formed in the margin of the shell at that end over which said sleeve member passes and are held resiliently against the outer surface of the metal shell to make good contact therewith by a portion of an elastomeric sleeve 21, conveniently formed of a plastics material. Sleeve 21 has a portion 22 formed to fit tightly upon shell 11 and is provided at its mouth with an inwardly projecting lip 23 so positioned as to pass over and engage the shoulder 24 formed between the shell portions 12, 13 of different diameter, thus firmly holding the sleeve in position upon the shell.

Sleeve 21 has a tubular portion 25 of a size to surround the cable to which the

connector is to be fixed. This portion is connected with the sleeve portion which grasps the shell by a generally radially extending sleeve portion. Within shell 11, sleeve 21 presents an inwardly projecting wall portion 26 surrounding the cable and abutting against the inward end surface of insulator 14 to prevent displacement of the insulator from its position abutting against shoulder 24 in use. Wall portion 26 is gapped at 27 to permit the passage of cable braid ends 19. Conveniently, sleeve 21 is provided with a narrow gap 28 in lip 23 to facilitate the sliding of the sleeve over the cable braid ends as they lie against the outer surface of shell 11. Outwardly of gap 28 and radially aligned therewith the sleeve has an outwardly projecting and axially extending rib 29 to increase the grasp of the sleeve upon the braid ends, or it may be otherwise formed to this end, as by a general and smooth increase in wall thickness upon the gapped side of the sleeve. It will readily be appreciated that the action of sliding the sleeve over the cable braid ends as described holds them tightly to the shell, thus anchoring the cable in the connector.

In a modification of the embodiment illustrated the wall portion 26 of sleeve member 21 may be omitted and the insulator may be fixed in shell 11, for example by the provision of integrally moulded portions engaging in apertures formed in the shell wall, or by a peripheral ridge held in a groove formed by a portion of larger diameter formed in shell 11. In this case the shell may have ends of like diameter separated by the portion of larger diameter and the mouth portion of sleeve 21 is arranged to extend over the bulged portion of the shell so that its inwardly projecting lip, provides a secure fastening.

#### 45 WHAT WE CLAIM:—

1. A coaxial cable connector including a central connecting member supported by an insulator member so as to lie within and coaxial with an outer metal shell compris-

ing a cylindrical connecting portion of smaller diameter joined by a shoulder portion to an adjacent cylindrical portion of larger diameter, and a sleeve member of elastomeric material having a portion fitting closely upon said shell portion of greater diameter and having an inwardly projecting lip arranged to engage said shoulder portion.

2. A coaxial cable connector in accordance with claim 1, wherein said lip is gapped at one portion of its periphery.

3. A coaxial cable connector in accordance with claim 2, wherein the wall thickness of said sleeve member is increased in radial alignment with said gap.

4. A coaxial cable connector in accordance with claim 3, wherein said increased wall thickness is provided by an axially extending and outwardly projecting rib.

5. A coaxial cable connector in accordance with any one of the preceding claims, wherein said shell is provided with a notch formed in its periphery at the end over which said sleeve member passes.

6. A coaxial connector in accordance with any one of the preceding claims, wherein said sleeve portion fitting upon said shell is connected by a generally radially extending portion with a tubular sleeve portion of smaller diameter.

7. A coaxial connector in accordance with claim 6, wherein said insulator member abuts against said shoulder portion of said shell and said sleeve member includes within it an inwardly projecting gapped wall portion which abuts said insulator to retain it in position against said shoulder.

8. A coaxial cable connector substantially as described with reference to the accompanying drawing.

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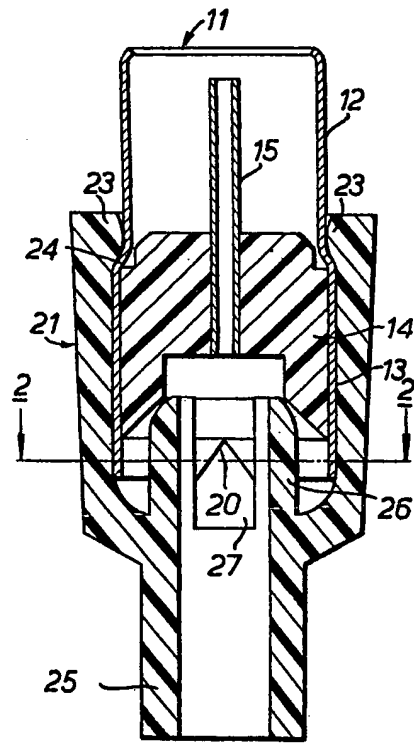


FIG. 1.

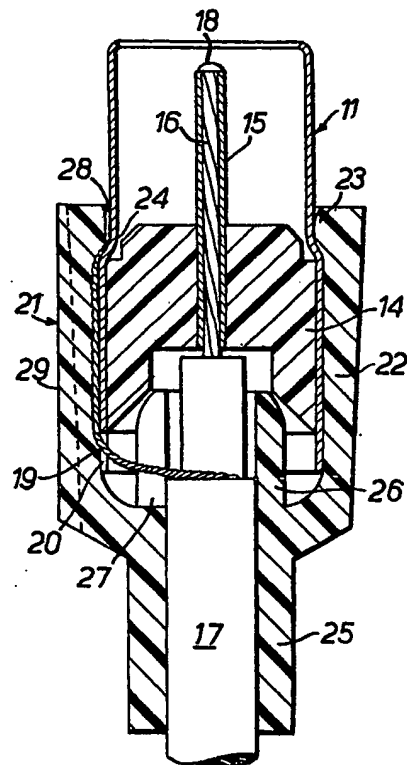


FIG. 3.

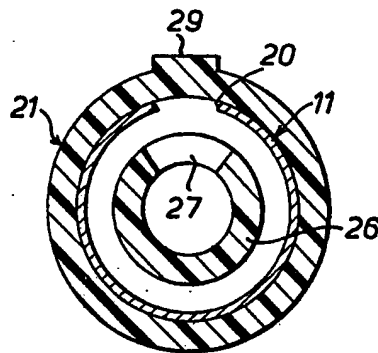


FIG. 2.